WHAT IS CLAIMED IS:

1. An inspection apparatus for inspecting a conductive pattern of a circuit board, in which a potential variation caused by applying an inspection signal to said conductive pattern is detected in a non-contact manner, said inspection apparatus comprising:

detect means for detecting the potential variation in each portion of said conductive pattern by use of a plurality of sensor elements; and

select means for outputting a select signal for selecting said sensor elements, wherein

each of said sensor elements is formed either on a single-crystal of a semiconductor or on a flat plate, and

each of said sensor elements includes;

a passive element operable as a counter electrode coupled capacitively with said conductive pattern to detect the potential variation in said conductive pattern, and

a transistor adapted to output a detect signal in response to said select signal which is input into said transistor, said detect signal being output from said passive element.

2. An inspection apparatus as defined in claim 1, wherein said transistor is a current-readout MOSFET, wherein said passive element is continuously formed with a diffusion layer served as a source of said MOSFET to be electrically conductive thereto, and said detect signal is obtained from a drain of said MOSFET by inputting said select signal into a gate of said MOSFET.

3. An inspection apparatus as defined in claim 1, wherein said transistor is a current-readout thin-film transistor, wherein said passive element is connected to a source of said thin-film transistor, and said detect signal is obtained from a drain of said thin-film transistor by inputting said select signal into a gate of said thin-film transistor.

4. An inspection apparatus as defined in claim 1, wherein said transistor is first and second MOSFETs connected in series with each other, wherein said passive element is connected to a gate of said first MOSFET, and said select signal is connected to a gate of said second MOSFET, wherein a potential at a source of said first MOSFET is varied in response to the potential at said passive element applied to said gate of said first MOSFET, said varied potential being received by a drain of said second MOSFET, and said received potential being output from a source of said second MOSFET as said detect signal.

5. An inspection apparatus as defined in claim 1, wherein said transistor is first and second thin-film transistors connected in series with each other, wherein said passive element is connected to a gate of said first thin-film transistor, and said select signal is input to a gate of said second thin-film transistor, wherein a potential at a source of said first thin-film transistor is varied in response to the potential at said passive element applied to said gate of said first thin-film transistor, said varied potential being received by a drain of said second thin-film transistor, and said received potential being output from a source of said second thin-film transistor as said detect signal.

6. An inspection apparatus as defined in claim 1, wherein said transistor is a bipolar transistor, wherein said passive element is connected to an emitter of said bipolar transistor, and said detect signal is obtained from a collector of said bipolar transistor by inputting said select signal to a base of said bipolar transistor.

7. An inspection apparatus as defined in claim 1, wherein said transistor is a charge-readout MOSFET, wherein said passive element is formed continuously with a diffusion layer serving as a gate of said MOSFET to be electrically conductive thereto, wherein a potential barrier formed below said gate is lowered by inputting said select signal into said gate of said MOSFET, a signal charge residing in a source of said MOSFET being transferred to a drain of said MOSFET as a charge for said detect signal,

and said detect signal being transferred by a charge-transfer element connected to said drain of said MOSFET.

8. An inspection apparatus as defined in claim 7, which further includes a charge-supply MOSFET for supplying a charge to said passive element in response to the potential variation in said conductive pattern and forming a potential barrier not to cause the backflow of said supplied charge before completing the potential variation in said conductive pattern, said charge-supply MOSFET having a drain formed continuously with said diffusion layer serving as said passive element to be electrically conductive thereto.

9. An inspection apparatus as defined in claim 1, wherein said sensor elements are arranged on a sensor chip in a matrix form.

10. An inspection apparatus as defined in claim 1, which further includes a conductor plate contacting the surface of said passive element.

11. An inspection apparatus for inspecting a conductive pattern of a circuit board, comprising:

supply means for supplying an temporally varied inspection signal to said conductive pattern;

detect means for detecting a potential variation, corresponding to said inspection signal, in each portion of said conductive pattern by use of a plurality of sensor elements; and

select means for outputting a select signal for selecting said sensor elements, wherein

each of said sensor elements is formed on a single-crystal of a semiconductor, and each of said sensor elements includes;

a passive element operable as a counter electrode coupled capacitively with

said conductive pattern to detect the potential variation of said conductive patter, and

a transistor adapted to output a detect signal in response to said select signal which is input into said transistor, said detect signal being output from said passive element.

12. An inspection apparatus for inspecting a conductive pattern of a circuit board, comprising:

supply means for supplying an temporally varied inspection signal to said conductive pattern;

detect means for detecting a potential variation, caused by supplying said inspection signal, in each portion of said conductive pattern by use of a plurality of sensor elements to output a detect signal corresponding to said potential variation; and

select means for outputting a select signal for selecting said sensor elements,

image data generating means for generating image data for representing a shape of said conductive pattern based on said detect signal, wherein

each of said sensor elements is formed on a single-crystal of a semiconductor, and

each of said sensor elements includes;

a passive element operable as a counter electrode coupled capacitively with said conductive pattern to detect the potential variation of said conductive patter, and

a transistor adapted to output said detect signal in response to said select signal which is input into said transistor, said detect signal corresponding to the potential variation detected by said passive element.

13. An inspection apparatus as defined in claim 12, which further includes shading means for preventing light from irradiating said semiconductor serving as said sensor elements.

14. A sensor for inspecting a conductive pattern of a circuit board, said sensor comprising a plurality of sensor elements for detecting a potential variation caused by

supplying an inspection signal to said conductive pattern, in a non-contact manner, wherein

each of said sensor elements is formed on a single-crystal of a semiconductor, and

each of said sensor elements includes;

a passive element operable as a counter electrode coupled capacitively with said conductive pattern to detect the potential variation in said conductive pattern, and

a transistor adapted to output a detect signal in response to said select signal which is input into said transistor, said detect signal being output from said passive element.